

Math 225¹ (Introduction to Linear Algebra)

Winter Semester 2026

Lecture: TuWeThFr 1:00 – 4:10pm Virtual

Instructor: Ahmet Kaan Aydin

Office: Sondheim 305 - Virtual During Winter

Office hours: Tuesdays from 4:30 to 5:30 Virtual

Contact via email for virtual appointments.

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Prerequisites: Math 141, 151 or 380, with a C or better, or approval of instructor

Textbook: *Linear Algebra and Its Applications* by David C. Lay and Steven R. Lay and Judi J. McDonald, 6th edition, Pearson, 2021.

MyLab: The course will use Pearson's MyLab software, which comes with both the eText and the interactive textbook. This course is participating in the Course Materials Initiative. You do not need to purchase a hard copy of the textbook if you do not wish to. You will access MyLab via the course's Blackboard Ultra shell.

Testing and Grading: The usual grading system will be used in this course as follows:

Grade	Score (%)	Point Range
A	90% – 100%	900 - 1000
B	80% – 89%	800 - 899
C	70% – 79%	700 - 799
D	60% – 69%	600 - 699
F	0% – 59%	0 - 599

Homework	Best 5, of 6 each 20 points	=	100 points	(10%)
Reading Quizzes	10 assignments each 10 points	=	100 points	(10%)
Quizzes	Best 4, of 5 each 25 points	=	100 points	(10%)
Midterm		=	300 points	(30%)
Final Exam		=	400 points	(40%)
	TOTAL	=	1000 points	(100%)

You're responsible for keeping track of assignment, quiz, and test due dates.

Attendance and Behavior: Attendance is not required but crucial to success in this class. New content will be covered at a rapid rate, and if you fall behind, it will be very difficult to catch up. **There will be no make-ups or extensions on homework or quizzes.** Quiz and Homework drops exist because life happens; there will be no quiz makeups for any reason. Make-up exams will be given **at my discretion**, in general only in situations where there is a conflict with a **sanctioned university activity or religious holiday** of which I have been notified **at least a week in advance**.

¹Last updated: January 2, 2026

Content: Linear Algebra deals with problems that are posed in terms of matrices. Typical problems include systems of linear equations and eigenvalue/eigenvector problems. The course also introduces the concepts and properties of vector spaces to demonstrate the rationale and power of mathematical abstraction. Linear Algebra is used in just about any scientific field, for instance, economics, engineering, statistics, and, of course, mathematics itself.

This course will develop both a proficiency with the terminology and calculation techniques of Linear Algebra and with the underlying concepts and their use to solve problems. This approach reflects the fact that it is both the calculation techniques and the fundamental concepts, including the language of Linear Algebra itself, that are ubiquitous in the application areas.

- Competence in basic manipulations of matrices and vectors (e.g., ability to solve low-dimensional systems by hand, understand and implement a general row reduction algorithm to solve a linear system, calculate eigenvalues and eigenvectors, construct orthogonal bases and projections, diagonalize matrices)
- Grasp of basic theory including existence of solutions, linear independence of vectors, determinants and matrix invertibility, nullspaces, column spaces and the rank theorem, characteristic equations and eigenvalues, eigenvectors and bases, geometry of orthogonal projections.

Homework (MyLab): Regular homework assignments will be given through MyLab. Due dates are listed on MyLab and course schedule. **There will be no make-ups or extensions on homework.** The lowest homework score will be dropped.

Reading Quizzes: It is important that we be in a position to discuss the course content in an informed manner. Therefore, before we introduce new material, you will need to read a couple of sections in the text and take a short reading quiz outside of class. Reading quizzes will be made available on the BlackBoard the night before each class and will be due by class. As the reading quizzes are meant to get you thinking and are not meant to reflect mastery, you can get one question wrong on each reading quiz without impacting your score.

Quizzes: Quizzes will be given periodically, including the content covered in lectures including the topics of the day of quiz. The quizzes will be open book/notes. The lowest quiz score will be dropped. **There will be no make-ups for quizzes.**

Midterm: A Midterm exam will be given **in-person** on following date:

- Midterm: **Wednesday, January 14, 2026 at BIOL 120**

Midterm exam will be closed-notes, closed-books. **There will be no makeups for the Midterm exam.**

Final Exam: The final exam will be given **in-person** during the official final exam period:

- Final: **Friday, January 23, 2026 at BIOL 120**

Final exam will be closed-notes, closed-books. **There will be no makeups for the final exam.**

Academic Integrity: By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include but is not limited to suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory. <http://www.umbc.edu/provost/integrity/faculty.html>

Academic integrity is a core value at UMBC and I expect that value to be reflected in your coursework. You must cite any outside sources you use for homework. You may not use any outside sources for exams or quizzes. You may be asked to have a one-on-one meeting with me to discuss course material. If your responses are substantially different from work you've submitted, you may face an allegation of academic dishonesty, which can result in a zero for the assignment in question and a report of academic misconduct.

Accessibility and Disability Accommodations, Guidance and Resources: Accommodations for students with disabilities are provided for all students with a qualified disability under the Americans with Disabilities Act (ADA & ADAAA) and Section 504 of the Rehabilitation Act who request and are eligible for accommodations. The Office of Student Disability Services (SDS) is the UMBC department designated to coordinate accommodations that creates equal access for students when barriers to participation exist in University courses, programs, or activities.

If you have a documented disability and need to request academic accommodations in your courses, please refer to the SDS website at sds.umbc.edu for registration information and office procedures.

SDS email: disAbility@umbc.edu
SDS phone: 410-455-2459

If you will be using SDS approved accommodations in this class, please contact the instructor to discuss implementation of the accommodations. During remote instruction requirements due to COVID, communication and flexibility will be essential for success.

Campus Safety: The following sections refer to campus policy on harrassment, violence, and other issues. All policies and forms can be found at ecr.umbc.edu.

Sexual Assault, Sexual Harassment, and Gender Based Violence and Discrimination UMBC Policy in addition to federal and state law (to include Title IX) prohibits discrimination and harassment on the basis of sex, sexual orientation, and gender identity in University programs and activities. Any student who is impacted by sexual harassment, sexual assault, domestic violence, dating violence, stalking, sexual exploitation, gender discrimination, pregnancy discrimination, gender-based harassment, or related retaliation should contact the University's Title IX Coordinator to make a report and/or access support and resources. The Title IX Coordinator can be reached at titleixcoordinator@umbc.edu or 410-455-1717.

You can access support and resources even if you do not want to take any further action. You will not be forced to file a formal complaint or police report. Please be aware that the University may take action on its own if essential to protect the safety of the community.

If you are interested in making a report, please use the Online Reporting/Referral Form at https://umbc-advocate.symplicity.com/titleix_report/index.php/pid364290?. Please note that, if you report anonymously, the University's ability to respond will be limited.

Notice that Faculty and Teaching Assistants are Responsible Employees with Mandatory Reporting Obligations

All faculty members and teaching assistants are considered Responsible Employees, per UMBC's Policy on Sexual Misconduct, Sexual Harassment, and Gender Discrimination. Faculty and teaching assistants therefore required to report all known information regarding alleged conduct that may be a violation of the Policy to the Title IX Coordinator, even if a student discloses an experience that occurred before attending UMBC and/or an incident that only involves people not affiliated with UMBC. Reports are required regardless of the amount of detail provided and even in instances where support has already been offered or received.

While faculty members want to encourage you to share information related to your life experiences through discussion and written work, students should understand that faculty are required to report past and present sexual harassment, sexual assault, domestic and dating violence, stalking, and gender discrimination that is shared with them to the Title IX Coordinator so that the University can inform students of their rights, resources, and support. While you are encouraged to do so, you are not obligated to respond to outreach conducted as a result of a report to the Title IX Coordinator.

If you need to speak with someone in confidence, who does not have an obligation to report to the Title IX Coordinator, UMBC has a number of Confidential Resources available to support you:

Retriever Integrated Health (Main Campus): health.umbc.edu 410-455-2472; Monday – Friday 8:30 a.m. – 5 p.m.; For After-Hours Support, Call 988.

Center for Counseling and Well-Being (Shady Grove Campus): 301-738-6273; Monday-Thursday 10:00a.m. – 7:00 p.m. and Friday 10:00 a.m. – 2:00 p.m. (virtual) Online Appointment Request Form <https://shadygrove.titaniumhwc.com/>

Pastoral Counseling via The Gathering Space for Spiritual Well-Being: 410-455-6795; i3b@umbc.edu; Monday – Friday 8:00 a.m. – 10:00 p.m.

Other Resources

Women's Center (open to students of all genders): <https://womenscenter.umbc.edu/> 410-455-2714; womenscenter@umbc.edu; Monday – Thursday 9:30 a.m. – 5:00 p.m. and Friday 10:00 a.m. – 4 p.m.

Shady Grove Student Resources (<https://ecr.umbc.edu/shady-grove-title-ix-resources/>), Maryland Resources (<https://ecr.umbc.edu/maryland-resources/>), and National Resources (<https://ecr.umbc.edu/national-resources/>)

Child Abuse and Neglect

Please note that Maryland law and UMBC policy require that faculty report all disclosures or suspicions of child abuse or neglect to the Department of Social Services and/or the police even if the person who experienced the abuse or neglect is now over 18.

Pregnant and Parenting Students

UMBC's Policy on Sexual Misconduct, Sexual Harassment and Gender Discrimination expressly prohibits all forms of discrimination and harassment on the basis of sex, including pregnancy. Resources for pregnant, parenting and breastfeeding students are available through the University's Office of Equity and Civil Rights. Pregnant and parenting students are encouraged to contact the Title IX Coordinator to discuss plans and ensure ongoing access to their academic program with respect to a leave of absence – returning following leave, or any other accommodation that may be needed related to pregnancy, childbirth, adoption, breastfeeding, and/or the early months of parenting.

In addition, students who are pregnant and have an impairment related to their pregnancy that qualifies as disability under the ADA may be entitled to accommodations through the Office of Student Disability Services.

Religious Observances & Accommodations

UMBC Policy provides that students should not be penalized because of observances of their religious beliefs, and that students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the responsibility of the student to inform the instructor of any intended absences or requested modifications for religious observances in advance, and as early as possible. For questions or guidance regarding religious observances and accommodations, please contact the Office of Equity and Civil Rights at ecr@umbc.edu.

Hate, Bias, Discrimination and Harassment

UMBC values safety, cultural and ethnic diversity, social responsibility, lifelong learning, equity, and civic engagement.

Consistent with these principles, UMBC Policy prohibits discrimination and harassment in its educational programs and activities or with respect to employment terms and conditions based on race, creed, color, religion, sex, gender, pregnancy, ancestry, age, gender identity or expression, national origin, veterans status, marital status, sexual orientation, physical or mental disability, or genetic information.

Students (and faculty and staff) who experience discrimination, harassment, hate, or bias based upon a protected status or who have such matters reported to them should use the online reporting/referral form (https://umbc-advocate.symlicity.com/titleix_report/index.php/pid954154?) to report discrimination, hate, or bias incidents. You may report incidents that happen to you anonymously. Please note that, if you report anonymously, the University's ability to respond may be limited.

Class website: Course information and content (including this syllabus, homework assignments, access to WebAssign, recorded lectures, practice material, and much more) will be available at the Blackboard website: <http://my.umbc.edu/go/blackboard>